

DOCUMENT RESUME

ED 045 048

24

HE 001 888

AUTHOR Jcyner, Orville D.
 TITLE Social Change and Educational Innovation in a Latin American University. Final Report.
 INSTITUTION Pittsburgh Univ., Pa.
 SPONS AGENCY Office of Education (DHEW), Washington, D.C. Bureau of Research.
 BUREAU NO BR-8-B-109
 PUB DATE 15 Nov 69
 GRANT OEG-2-9-480109-1013-010
 NOTE 144p.
 EDRS PRICE EDRS Price MF-\$0.75 HC-\$7.30
 DESCRIPTORS *Attitudes, *Educational Technology, *Faculty, Foreign Countries, *Higher Education, *Innovation, Instructional Improvement, Instructional Technology, Perception, Teacher Attitudes
 IDENTIFIERS *Guatemala, Instructional Materials Center

ABSTRACT

The purposes of this study were: (1) to determine the implications of present perceptions of selected faculty and administrative personnel at the University of San Carlos (USC) in Guatemala with regard to the potential of the new Instructional Materials Center (IMC) for their individual responsibilities; and (2) to describe subsequent changes in these perceptions and related behaviors which occurred as responses to the demands of university faculty and administrative roles, and other sources of influence. The first chapter discusses the purposes, background, and problems of the IMC project, the basic goal of which was the improvement of educational resources at the University of Pittsburgh and USC. The project was sponsored by USAID. Chapter 2 describes the development of the IMC project at USC, the preconditions leading to the IMC at San Carlos, the IMC contract period, and the events occurring after the contract. Chapter 3 presents an analysis and interpretation of higher education in Guatemala, educational technology, directed and purposeful change and social process as related to the IMC project. Conclusions and recommendations are presented in Chapter 4. (AF)

ED045048

BR 8-B-109
PA 24

Final Report

Project #8-B-109
Grant #OEG-2-9-480109-1013 (010)

SOCIAL CHANGE AND EDUCATIONAL INNOVATION IN A
LATIN AMERICAN UNIVERSITY: ~~A CASE STUDY OF THE
USE OF THE NEW MEDIA IN SAN CARLOS UNIVERSITY
IN GUATEMALA~~

Orville D. Joyner
University of Pittsburgh
Pittsburgh, Pennsylvania 15213

November 15, 1969

The research herein was performed pursuant to a grant from the Office of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
HEALTH, EDUCATION AND WELFARE

Office of Education
Bureau of Research

U.S. DEPARTMENT OF HEALTH, EDUCATION
& WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED
EXACTLY AS RECEIVED FROM THE PERSON OR
ORGANIZATION ORIGINATING IT. POINTS OF
VIEW OR OPINIONS STATED DO NOT NECES-
SARILY REPRESENT OFFICIAL OFFICE OF EDU-
CATION POSITION OR POLICY.

HE001 882

ABSTRACT

SOCIAL CHANGE AND EDUCATIONAL INNOVATION IN A LATIN AMERICAN UNIVERSITY: A CASE STUDY OF THE USE OF THE NEW MEDIA IN SAN CARLOS UNIVERSITY IN GUATEMALA

Orville D. Joyner
University of Pittsburgh

1. Statement of Problem

The formal problem for this research project has two aspects: (1) to determine the implications of present perceptions of selected faculty and administrative personnel at the University of San Carlos with regard to the potential of the new Instructional Materials Center for their individual responsibilities, and (2) to describe subsequent changes in these perceptions and related behaviors which occurred as responses to the demands of university faculty and administrative roles, and other sources of influence.

2. Procedures

An attempt was made to describe, analyze and interpret the organizational adaptations at San Carlos University in Guatemala associated with the establishment of an Instructional

Materials Center which was the result of an USAID funded bilateral agreement between San Carlos and the University of Pittsburgh.

Information was gathered through participant observation activities and from written sources as well. Special significance was accorded activities which could be related to behaviorally stated project objectives, and in all cases, facts and their interpretation were treated in terms of the problem elements of higher education, educational technology, directed, purposive change and social process. The assumptions related to those problem elements and the professional orientation of the principal investigator all relied on a position that instructional materials centers can make a unique contribution to education through instructional materials design, production and utilization, and through the fostering of, and reliance on, research in media use.

3. Conclusions

A consideration of the organizational adaptations at San Carlos associated with the Instructional Materials Center (IMC) suggests that, as far as the IMC was concerned, the acute secondary teacher shortage in Guatemala and large scale educational development programs aimed at this and other deficiencies were the most significant characteristics of the host system. Changes in instructional patterns, the new, large, internationally funded educational programs, and

educational planning activities in Guatemala represent three broad frontal attacks on educational deficiencies there. The IMC had innovational potential for assistance in all these broad areas of activity, but it was neither fully realized by IMC personnel nor recognized by San Carlos administrators or faculty.

The IMC served as a model and an information resource, as well as partially meeting the need for instructional materials production and utilization; but it did not achieve a viable, influential status. San Carlos decided not to support it at the end of the contract, and it appeared to have lost its capacity to serve and survive at the end of this research study.

It appears that the value of programs of technical assistance between institutions of higher education in North America and Latin America probably is greater when it is undertaken free of political constraints, when it respects the autonomy of all institutions, when sufficient time is available to firmly establish goals and implement realistic programs, when more people are permitted to participate in planning and policy decisions, and when due and mutual respect is accorded the value systems of the participating societies.

TABLE OF CONTENTS

CHAPTER		PAGE
I	TECHNICAL ASSISTANCE IN GUATEMALAN HIGHER EDUCATION--FIGURE AND GROUND.....	1
	INTRODUCTION.....	1
	The IMC project.....	1
	Purpose.....	1
	Previous involvement.....	2
	Research strategy.....	3
	Organizational health.....	7
	Special properties of educa- tional systems.....	8
	Change models.....	9
	Structure/function dichotomy.....	10
	BACKGROUND.....	11
	PROBLEM.....	14
	Limitations.....	14
	Assumptions.....	15
	Research problem elements.....	17
	Procedures.....	18
	Analysis and interpretation.....	20
	SUMMARY.....	23
II	THE CASE OF THE INSTRUCTIONAL MATERIALS CENTER AT THE UNIVERSITY OF SAN CARLOS....	25
	PRECONDITIONS LEADING TO THE IMC AT SAN CARLOS.....	25
	Humanities.....	25
	University City.....	27
	School of General Studies.....	27
	IIME.....	28
	University of Pittsburgh.....	29
	First Pitt, AID/G--San Carlos proposal.....	31
	Recapitulation.....	32
	IMC proposal.....	33
	IMC contract.....	34
	IMC implementation.....	35
	Educational planning in Guatemala.	36
	New universities.....	37

CHAPTER

PAGE

IMC CONTRACT PERIOD.....	38
Equipment purchase.....	38
RTAC.....	39
The center for the production of materials.....	40
Plan of action.....	40
Phase-out activities of the IMC...	47
External aid policies.....	48
Personal and professional relationships.....	49
General Studies.....	50
Summary.....	51
UNIVERSITY OF SAN CARLOS AND IMC EVENTS AFTER THE CONTRACT.....	52
Research permission confirmed.....	52
General Studies.....	52
The 1969 budget.....	53
Audiovisual center in the Ministry of Education.....	54
Faculty use of media.....	55
The production materials center...	55
BID proposal.....	56
Teacher training school.....	57
Associated organizational adaptations.....	59
Engineering.....	60
Population studies.....	60
UNDP studies.....	60
SUMMARY.....	62
III THE IMC AT THE UNIVERSITY OF SAN CARLOS: ANALYSIS AND INTERPRETATION.....	64
HIGHER EDUCATION IN GUATEMALA.....	64
Figure and ground.....	65
Physical description.....	65
Population.....	66
Education.....	68
University of San Carlos.....	69
Superior Council.....	72
Córdoba Reform.....	73
Special properties of educational systems applied.....	77
Summary.....	79
EDUCATIONAL TECHNOLOGY.....	80
Educational technology defined.....	80
Role of communication and educational technology.....	81

CHAPTER		PAGE
	Media.....	82
	Method.....	83
	Media research.....	84
	Systems analysis.....	85
	Summary.....	86
	The IMC as innovation in education technology.....	87
	Project dimensions.....	90
	Confrontation patterns.....	91
	Summary.....	92
	DIRECTED, PURPOSIVE CHANGE.....	94
	Change.....	94
	Technical assistance.....	94
	Culture.....	95
	Functions of education.....	96
	Role of innovation advocate.....	97
	Primary and secondary development.....	98
	Politics.....	100
	Bilateral contracts.....	102
	Organizational health.....	105
	Research and development.....	106
	Planning.....	107
	Tension reduction.....	107
	Summary.....	108
	The IMC as directed purposive change.....	109
	SOCIAL PROCESS.....	113
	Summary.....	117
	The IMC as social process.....	118
IV	CONCLUSIONS AND RECOMMENDATIONS.....	121
	CONCLUSIONS.....	121
	Broad fronts of educational development.....	122
	Level I of problem response.....	126
	Level II of problem response.....	127
	Level III of problem response.....	128
	RECOMMENDATIONS.....	129
	International funding.....	129
	Long term projects.....	130
	The Urquidi recommendation.....	130
	SUMMARY.....	132
	REFERENCE.....	133

include this

Final Report
Project #8-B-109
Grant #)EG-2-9-480109-1013 (010)

SOCIAL CHANGE AND EDUCATIONAL INNOVATION IN A
LATIN AMERICAN UNIVERSITY: ~~A CASE STUDY OF THE~~
~~USE OF THE NEW MEDIA IN SAN CARLOS UNIVERSITY~~
~~IN GUATEMALA~~

Orville D. Joyner
University of Pittsburgh

ERRATA

- | | |
|------------------------|---|
| P. 17, par. 1, line 17 | the correct phrase is
"...organizational <u>adaptations</u> " |
| P. 23, par. 1, line 6 | the correct phrase is
"...slight <u>adaptation</u> to" |
| P. 26, par. 2, line 8 | following footnote qualifies
the sentence ending with
"...teaching at the primary
level.*"
"*Secondary schools are also
partially staffed by uni-
versity professors and other
professional people teaching
part-time and by university
students who have not
completed university degree
work." |
| P. 38, par. 1, line 16 | the correct date is "1967" |
| P. 50, par. 3, line 10 | the correct phrase is
"...for one <u>professor</u> " |
| P. 81, par. 2, line 14 | the correct spelling is
"...Rene <u>Barrientos Ortuño</u> " |

CHAPTER I

TECHNICAL ASSISTANCE IN GUATEMALAN HIGHER EDUCATION--FIGURE AND GROUND

Introduction

The IMC project--In the fall of 1968, the University of Pittsburgh (Pitt) and the University of San Carlos (USC) in Guatemala concluded two years of cooperative effort aimed at the establishment of an Instructional Materials Center (IMC) at San Carlos. This project was funded by the United States Agency for International Development (USAID), supervised by its Guatemala mission (AID/G), and administered and staffed by both universities. The contract provided for technical services in instructional materials and media to be supplied by Pitt at San Carlos, and for supporting administrative and advisory services on the Pitt campus. The IMC project at San Carlos represented an innovation in higher education in Guatemala, because it was initiated as a technical assistance project implemented by two institutions of higher education, each with roots in different cultural contexts.

Purpose--The present research project was undertaken after the IMC contract expired, and its purpose was to

analyze this technical assistance IMC project in educational technology in order to (1) provide information useful to agencies engaged in relating educational technology to larger economic and social planning opportunities and (2) contribute to the literature dealing with the role external technical assistance may play in effecting educational change in developing countries. A third general purpose of this study has been to achieve additional insight into the technical assistance process, particularly when it is undertaken by cooperating institutions of higher education based in at least two different social contexts.

This research has been carried out in the inquiring spirit of Beeby's (1966) remarks when he suggests that we need a "better understanding of the pattern of resistance forces acting at the junction where ideas and techniques flow from one school system to another at a different level of development [p. 477]." Whether, in fact, "resistance" is an adequate description of a technical assistance response, it is no secret that few such projects are unmitigated successes or failures, and that increased insight into the technical assistance process is desirable.

Previous involvement--In 1967, before the beginning of this study, I served as a short term, six week consultant to the IMC in its early stages. My activities in the IMC at that time were primarily those required to establish the center as an operating unit. These included:

1. assembling newly arriving equipment;
2. initiating a working relationship with the new off-set printing center on campus;
3. producing visuals for USC faculty and IMC personnel;
4. teaching the instructional materials course to faculty members of the Biology Department at USC;
5. consulting with faculty and administrators.

The intellectual involvement thus engendered was kept alive by contact with the back-stopping operation on the Pitt campus when I returned there to continue graduate study, and by a second visit to Guatemala in the summer of 1968 as assistant director for an NDEA institute on Latin American Culture and Society. During this second visit to Guatemala, funding of this research grant became a near certainty, and it was possible to establish initial contacts at the university which served to facilitate a return to the San Carlos campus some two months later for research purposes.

Research strategy--Research activities included personal observation and participation in university activities, inspection of written sources of information, establishment and maintenance of contacts with San Carlos personnel closely associated with the IMC project proposals, contract and operation, regular attendance at the IMC, and discussion with educational communication experts visiting or working in Guatemala. This has been an exploratory field study, dealing with events before, during and subsequent to the IMC project contract period, and is aimed at discovering significant variables in the field, and their relation to each other (Kerlinger, F. N., 1967, p. 388). IMC project relationships

with the University of San Carlos have been examined both in terms of available options, and in terms of decisions and organizational adaptations undertaken by the University of San Carlos in response to demands made upon the educational resources of the university.

The original research strategy had called for my regular, unpaid presence in the IMC. One of the assumptions of this research project was that San Carlos would continue to support the center after contract activity ceased, and that this support would be for a level of activity not greatly different from that which was characteristic of the contract period. I expected to serve as a professional IMC consultant and production worker and in other ways as needed in order to maintain my status as participant observer of instructional media use at San Carlos. This strategy had been developed in cooperation with the coordinator of educational resources at San Carlos. He had been the Guatemalan counterpart of the IMC director under the AID/G contract, and was placed in charge of the IMC when the contract expired. It had been determined earlier that some production materials were in short supply, and provision was made in the research budget for purchase of these materials as the need arose. Although the IMC was not dismantled, the University of San Carlos was not able to appropriate money for its operation. This meant that no expendable supplies could be purchased by San Carlos, nor was it possible to employ any person to

maintain the service capability of the IMC. San Carlos administrators and faculty permitted research activities related to the IMC. However, when official permission was requested to announce to faculty a list of available IMC services made possible by my presence, it was refused on the grounds that it might generate a demand which could not then be satisfied after the research project ended.

The inability to offer production services to faculty severely curtailed opportunities for contact with teachers interested in the use of media. It was, nevertheless, an important incident for the insight it provided relative to the probable future of the IMC. It led, also, to an increased and productive concern for the personal and organizational adaptations which appeared to be required or underway as a result of the cumulative nature of educational development in Guatemala. Since these adaptations are functions less of chronology than of long-term interactions, the adaptations used as examples here are not necessarily final or certain.

The San Carlos administrative activity related to the use of media which did appear open to research attention was that associated with the plans and philosophy underlying several loans and grants to Guatemala for educational development which were to become a reality during the life of this research project. Proposals and plans for sizable loans for all three levels of education in Guatemala had

been in preparation for at least two years prior to the initiation of this research project. The University of San Carlos had a direct involvement in a proposed Inter-American Development Bank (BID) loan to higher education in Guatemala, a World Bank loan for secondary school construction, a Unesco grant for secondary teacher education, and a more tangential involvement with the USAID loan to the Ministry of Education for primary education. These proposals were important to the IMC and this research project because, with varying degrees of specificity and commitment, these major educational programs contained concerns for the development of instructional materials, media and the training of people to carry out materials/media functions.

From its inception, the IMC served as one model for the planning and development of the instructional materials/media components of the major educational development programs financed by the loans and grants. In addition, it served as a resource of information concerning the hardware, software, personnel and ideas available for the implementation of those components. These functions, and the one of equipment loan to faculty, were still intact at the end of the IMC project, and were functions that it was possible to maintain in my role of researcher. Indeed, these functions facilitated contact with university personnel and provided knowledge of the educational problems and opportunities on San Carlos campus.

Organizational health--These problems and opportunities of Guatemala presented San Carlos governing individuals and organizations with a number of small and large decisions concerning educational development. Many of these were neither clearly administrative nor pedagogical in nature, often being some of both and sometimes involving national politics. It is clear that San Carlos is a stable educational system with traditional and recognized ways of making the decisions required to maintain its stability, autonomy and integrity. However, in the face of growing pressure to respond more quickly in quantitative terms to escalating vocational demands of the country, the traditional decision making process at San Carlos was not always adequate. It is just such a condition that Miles (1965) suggests can be analyzed in terms of what he calls "organizational health [p. 147]."

Miles (1965, pp. 14-21) prefers to define health not so much in terms of disease-freeness, but rather in terms of enthusiastic and positive coping behavior. He suggests that this concept of health is characterized by the second-order system perspectives of survival, growth and effective problem solving. These properties are according to Miles (1965), defined by the dimensions of goal appropriateness, communication adequacy and power equalization, resource utilization, cohesiveness, morale, innovativeness, autonomy, adaptation and problem-solving adequacy. "An adequate organization, then, has well-developed structures and procedures for sensing

the existence of problems, for inventing possible solutions, for deciding on the solutions, for implementing them, and for evaluating their effectiveness [Miles, 1965, p. 217]."

Special properties of educational systems--The properties mentioned above are assumed to be present to some degree in all systems, but this should not "obscure the fact that educational systems have special properties which condition the propositions of organization theory in reasonably predictable ways [Miles, 1965, p. 227]." Some of these special properties are:

1. goal ambiguity--difficulty in specifying the output;
2. input variability--in terms of students and teachers;
3. role performance invisibility--the closed classroom door;
4. low interdependence of the parts;
5. vulnerability--subject to control and criticism of the public;
6. lay-professional control problems;
7. low technical investment.

Not all these properties, notably #5 and #6, apply equally well to the University of San Carlos. The remaining five seem to apply with particular intensity, and suggest where major difficulties may occur in Guatemalan higher education.

The University of San Carlos is susceptible to problems associated with these special properties and often finds those problems intensified by a circumscription imposed by a relatively small, closed and intertwined political and economic system. In addition, the shortages of money and skilled manpower in Guatemala are real. Programs designed

to ease these shortages, which range from revolution to massive assistance projects, are all fraught with potential threat to the status quo and to the system which supports it. An increase in technical investment, for example, could precipitate changes in goal definition and teacher competence requirements as well as in professorial invisibility and interdependence. The introduction of an IMC to the San Carlos campus was a relatively small intrusion, seemingly incapable of serious system disruption. Nevertheless, as an increase in the technical investment at San Carlos, the IMC did, in some manner and degree, stimulate greater awareness of specific problems associated with the above named special properties of educational systems.

Change models--A review of the literature dealing with social process and directed, purposive societal change reveals a general interest in motivational models which could help explain the activities of people and systems when an innovation is introduced. These models tend toward a modality of their own, e.g., resistance, cooperation, tension-management and confrontation. All such models recognize the interaction of an intervention and its host system. Miles for instance, (1965, p. 11) calls these two elements "figure" and "ground" and suggests a need for greater knowledge of the ground characteristics, and in particular, aspects of its organizational health.

The structure/function dichotomy--The concept of organizational health has application in the analysis of both structure and function properties of an organization. The introduction of new coping mechanisms into an organization would most likely affect structural dimensions of the organization as well as some of its function. The improvement of existing coping procedures and mechanisms is more likely to affect function aspects only. In the case of the University of San Carlos, an adequate knowledge of "ground" characteristics would probably include a clear understanding of the university's basic structure/function properties. Strategies for facilitating organizational adaptations within the university could then reflect a conscious choice of structure or function aspects as the target. A number of organizational changes had been undertaken at San Carlos, and others were contemplated but in general these were changes in function rather than structure. The basic autonomy of San Carlos University vested in the Superior Council is a structural property and is an article of faith within the San Carlos community. Any change which is perceived as a threat to it is resisted out of hand. Functional changes, particularly in the form of programs added, normally posed no threat to autonomy so strong it could not be dealt with. Structural changes which would have required new jurisdictional alignments and new decision-making processes may be seen as more threatening and therefore, less desirable.

Background

This study appears to have been undertaken at a particularly appropriate time. In 1949, the University of San Carlos began the construction of a new campus on the edge of Guatemala City; one effect of which was a movement toward the centralization of all Facultades within the University. A Facultad is roughly equivalent to a school or college in North America, e.g., a school of medicine or a college of education. The San Carlos Facultades have traditionally been housed in their own buildings, each of which was remote from the others, making mutual interdependence difficult.

After the centralization process was well established, a General Studies curriculum was devised and initiated. In effect, the School of General Studies added two years to an already over-long university career because all new San Carlos students were required to pass through these basic two year programs before enrolling in the Facultad of their choice. The addition of two years of instruction for large numbers of newly enrolled students generated a number of logistic and curricular problems for which there was no immediate solution.

One such problem surfaced as an expressed need, particularly on the part of the chairman of the Biology Department in the School of General Studies, for teaching materials of all sorts, both for student and faculty use. It is also evident from letters, preliminary plans, and the IMC contract

that Pitt, San Carlos and AID/G proponents of the media center were working on the basic assumption that the educational process at San Carlos could be improved, particularly in view of an excessive student wastage demonstrated by failure rates which vary by class from 50 to 90 percent (Spaulding, circa 1964). The general line of thought was that university students came to San Carlos poorly prepared to do university work, and moreover that the university faculty were themselves unable to respond to this problem, either for lack of educational resources or lack of any concern. The media center was conceived, therefore, as an intervention with the purpose of providing (1) instructional resources for university professors and (2) an impetus toward increased concern for improved educational performance at the university level.

The chairman of the Biology Department was the author of the proposal from San Carlos to establish the IMC. During the contract period, he and his faculty continued to be enthusiastic supporters and users of the IMC resources. At almost the same time that the IMC contract expired, the threat of a university-wide student strike was sufficient to cause the Superior Council to vote in favor of dissolving the School of General Studies. One immediate result of that action was that the Biology Department suddenly had no administrative home in the university. Serious difficulties were subsequently experienced in restructuring the university curriculum to provide instruction in those General Studies courses considered too valuable to drop.

This research project was begun after the IMC contract expired and at almost precisely the same time that the School of General Studies was voted out of existence by the Superior Council of San Carlos. The latter stages of the School of General Studies and the IMC contract overlapped in time, and also coincided with other university efforts to meet a growing need for more money and to train more and a greater variety of university graduates. Proposals for loans and grants were being developed, as were proposals for restructuring the Facultades to achieve a more efficient use of available resources.

This research project has presented a unique opportunity to be present at a time in the development of San Carlos University when university elements have been called upon to identify a number of key issues and problems, and to search for solutions to these problems. These problems and opportunities revolve around the issues of (1) basic change in the structure and function of the Facultades, and (2) methods of achieving increased financial support. Related issues are those associated with maintenance of university autonomy, control of all higher education in Guatemala, curricular revision, secondary teacher education, and in general, an increased responsiveness to the demands of social and economic development in Guatemala.

Problem

The formal problem for this research project has two aspects: (1) to determine the implications of present perceptions of selected faculty and administrative personnel at the University of San Carlos with regard to the potential of the new Instructional Materials Center for their individual responsibilities, and (2) to describe subsequent changes in these perceptions and related behaviors which occurred as responses to the demands of university faculty and administrative roles, and other sources of influence.

Limitations--This research project was initiated on October 11, 1968, when I arrived to begin a nine month residence in Guatemala. That period of residence ended July 20, 1969, and was devoted wholly to research related to this project.

No attempt was made to survey media use in other institutions of higher education in Guatemala, nor was any comprehensive assessment made of media use in other levels or types of instruction, either in the cities or in the countryside. Some other schools were visited, but only for the acquisition of a general background on the nature of the educational communication environment surrounding the University of San Carlos.

Research activity was focused on the organizational adaptations at San Carlos related to the presence of the media

center on the new campus. This required (1) frequent and regular contact with key personnel at the university who were involved with and/or acquainted with the IMC as well as administrative decisions being taken or considered; (2) my regular and frequent presence in the IMC; (3) freedom to establish and maintain contacts with others in social science research, particularly those with interest in higher education. All these conditions were met during the period of research.

Assumptions--When this research was first proposed, a number of assumptions were stated; some appeared at that time to be important and fundamental. They were: (1) that the two universities and AID/G were in basic agreement that an IMC could make a needed contribution to the educational process at San Carlos; (2) the basic structural formation of the faculty would undergo no significant changes within the period of the research; (3) San Carlos would support, if only minimally, continued IMC service to the faculty. From information already presented it can be seen that these assumptions were in fact, barely tenable. At least two other assumptions were stated. They were: (1) San Carlos faculty do not regard the use of media as being crucial to improved teaching and learning, and that their perceptions of the value of media would change primarily as responses to, and in, peer relationships, and (2) with respect to the use of media in their teaching, the character and level of the faculty's entering skills, behavior, previous experience with media and

communication, existing culturally defined preference scales and value systems, as well as personal professional identity, all were in some way incompatible with the goals and rationale of the media center. The thrust of these assumptions is that the media center had had, so far as had been determined prior to this research, only a minimal influence on the teaching process at San Carlos.

Though the foregoing may or may not be true, events at San Carlos coinciding in time with the beginning of this research, and subsequent to it, worked to provide a research environment in which the use of instructional materials and media by faculty members could not be adequately studied. The original intent had been to pay particular attention to the instructional activity of the Biology faculty, with reference to their use of instructional materials and media. The demise of the School of General Studies and the loss of the Biology professors as an intact group required a refocus of research activity. Moreover, the University of San Carlos administrative officers failed to support in any substantive way IMC service activity after the end of the contract. Equipment bought under the contract remained in the room originally provided and was available for use by qualified faculty, and I was permitted access to the room and equipment for research purposes. It became increasingly evident, nevertheless, that university administrators were hesitant about supporting the IMC in its extant form, and also about exactly what kinds of changes in the IMC needed to be made.

Therefore, the guiding assumptions for this research became: (1) that the administrative and teaching organization of San Carlos is sustaining great pressure from a number of directions to become more responsive to the developmental needs of Guatemala; (2) the decision-makers in the university assume that instructional media can make a positive contribution to the teaching process at the university and resultant educational product (the graduate); (3) the administrative organization of San Carlos was such as to require certain changes to permit an adequate response to the challenge of the development and the instructional advantages offered by educational technology. During the period of this research, a number of organizational changes were contemplated by San Carlos, primarily in Facultad structure and function. Not all the changes were related to the use of instructional media, but reliance on the above assumptions permitted a view of bilateral interventions and organizational adaptations which appears to offer insight into the technical assistance process.

Research problem elements--The remainder of this study is organized on a concept of the interdependence of four major elements of the research problem. They are listed here, and are accompanied by definitive and relational assumptions.

1. Higher education, in Guatemala, at least, has a large influence upon the character of education at all levels. This derives from legally defined responsibilities as well as the natural course of events which ordinarily places university graduates in responsible positions within the Ministry of Education and the universities.

2. That educational technology could provide the tools and methods for (a) the need to multiply the effect of a relatively small number of trained teachers, and (b) the identification of educational problems and opportunities and focusing on appropriate methods for resolving them.
3. That directed, purposive change is primarily concerned with the process and act of acceptance of innovations which may be temporarily disruptive and/or disfunctional, and which will require varying degrees and types of social invention.
4. That social process is mainly concerned with individual and societal self-renewal, i.e., the maintenance of basic integrity in the face of the changing of norms and values which frequently results from confrontations with different systems of knowledge and technology.

Procedures--Historical information useful in this study was available in files of the University Center for International Studies at the University of Pittsburgh, IMC files at San Carlos University and unclassified files of AID in Guatemala. A log of research activities for this study was maintained. Recorded in this log are descriptions of events related to possible disposition of the IMC, results of informal interviews and conversations with administrators and faculty, and a record of IMC service activity after the contract ended. Other useful information came from reports, bulletins, plans and occasional papers and letters which were made available to me in Guatemala. Finally, information and insight were often obtained from other researchers and visitors to Guatemala.

The academic calendar of San Carlos indicates that some classes begin on January 15 and end in November. Not all

classes begin or end on precise days, but the general aim is to provide approximately ten months of instruction each calendar year. My arrival in Guatemala in early October coincided with the beginning of the final exam schedule which occupies much of October and part of November. At exam time, teachers frequently have little interest in formulating teaching plans for the coming year. In the early months of the research, little use by faculty of the IMC facilities was expected, and there were no surprises in this regard. This time was used to: (1) follow the evolving situation regarding the resolution of problems associated with the loss of General Studies; (2) conduct interviews and attend numerous meetings with the coordinator of educational resources; and (3) make my presence known to as many people as possible who might be useful in providing additional research information. This last activity included people in the Office of Educational Planning and Research (OPIE) of the Ministry of Education, AID/G personnel, San Carlos teachers and administrators, and other social science researchers.

In particular, I maintained regular contact with the two men at the university who had been most intimately involved over the years with the creation and administration of the center. These two men were my main links with the university and the center, and to many other educators in Guatemala as well. One of these men was the IMC contract counterpart and had been charged by the university with

coordinating educational resource programs, which included the IMC, but his central activity at the university was within the framework of university planning. The second man was the former chairman of Biology in the School of General Studies. As an energetic teacher and researcher in the natural sciences, he had been, as noted earlier, one of the original proponents of a media center, and one of its more enthusiastic users during the life of the IMC contract.

In both instances these two men were committed to the increased use of media for university teaching, but for a variety of reasons this commitment was expressed in different ways. These men represented respectively, the administrative and teaching functions at San Carlos as well as different points of view with regard to the most beneficial arrangements within the university for provision of media service to the faculty. Contact with these differing, sometimes opposing, points of view was especially helpful in identifying major issues and possibilities for their resolution.

Analysis and interpretation--This study concerns a technical assistance project in educational technology for higher education, the dimensions of which are characterized by selected facts and a professional interpretation of them. In this study, the interpretation placed on the facts is based on an analysis of them which reflects the assumptions already stated relative to the problem elements of higher education, educational technology, directed purposive change and social process.

It is possible to select only those facts which will, through interpretation, support a predetermined thesis, and the research problem, hypothesis and assumptions become a self-fulfilling prophesy. In an endeavor to avoid that trap, caution has been exercised in this study to label very little as incontrovertible fact. Historical documents and primary sources which were available to me did not necessarily reveal the complete background for the event with which they dealt. Moreover, it is not possible to determine whether, and to what extent, the classified files of the three institutions involved in the IMC project may have contained helpful information. The assumption was made that they did not; in this study, analysis and interpretation of available information relies primarily on the importance of what happened rather than what people said they hoped would happen.

A technical assistance project does not rule out the presence and effect of attitudinal stances taken by participating parties, but the value of evaluative research is thought by some to derive primarily from a consideration of dependent variables which have been "formulated in behavioral rather than attitudinal terms [Caro, 1969, p. 90]." Information selected for inclusion in this study was judged to be useful when it was descriptive of what was proposed and/or what happened with respect to the IMC. Decisions concerning the relevance of such information reflected a reliance on a professionally accepted position that instructional materials

centers in higher education, properly administered and supervised, can make a unique contribution to education through instructional materials design, production and utilization, and through the fostering of, and reliance on, research in media use (Mierhenry, 1964, p. 6). The application of this statement to the IMC at San Carlos does not require a particular stance regarding implementation of these functions, and in this study, every effort was made to refrain from overtly supporting any specific implementation decision to be made by San Carlos. Although not intended, the very presence of this research project probably lent covert support to the extant form and functions of the IMC. In any event, San Carlos administrators made the IMC facilities available for this research project, but apparently made no major decision to change IMC status on the San Carlos campus.

The IMC project may be considered to be an innovation in higher education in Guatemala with potential for a spread effect into other areas and levels of education there. Miles (1964) says, "Basically the problem is that we do not understand--we do not know with any clarity or precision the answers to questions about almost every imaginable aspect of innovation in education [p. 40]." His book, Innovation in Education, deals primarily with educational innovations attempted in the United States. He suggests some important classes of questions about innovations and it is a mark of the fundamental nature of these questions that they appear

to be equally applicable to situations involving technical assistance in more than one cultural context. Miles gives leave to other researchers to adapt and reorganize the questions he presents in order to facilitate further insight into the innovational process. Accordingly, the areas of inquiry presented here bear the mark of slight adaption to this research project. They are:

1. prior states of the system;
2. special characteristics of educational systems;
3. characteristics of the innovative person or group;
4. characteristics of the innovation;
5. process during change;
6. the fate of innovations;
7. reasons for changes in innovation rates.

Summary

This is a case study of a short-term bilateral technical assistance project in higher education; the basic goal of which was the improvement of educational resources at the University of Pittsburgh and the University of San Carlos in Guatemala. The major IMC effort was concentrated in Guatemala in an attempt to institutionalize an instructional materials center at the national university, an attempt with innovational implications for education at all levels, and particularly for secondary teacher training at the University of San Carlos. The time span of the IMC project is precise, and records of its activity and accomplishments are sufficient to permit some inferences about its immediate impact on education at San Carlos. Attention to the gathering and interpretation

of research data and information shifted, in process, from strictly pedagogical concerns to organizational adaptations and their implications for educational technology as well as for higher education in Guatemala.

CHAPTER II

THE CASE OF THE INSTRUCTIONAL MATERIALS CENTER AT THE UNIVERSITY OF SAN CARLOS IN GUATEMALA

A college roommate of Miles (1965) is quoted as saying, "You know, everything is really connected to everything else [p. 187]." So it is with the IMC. The case history of the IMC is the story of long-term, intertwined preconditions, the first of which led on to other preconditions and other programs. It is the story of personal and professional relationships and of personal and individual commitment and ambition. Local, national, and international political concerns were frequently a consideration, some supporting the IMC, some opposing it. Culturally biased responses to most phases of the IMC can be detected, as can individual or group instances of resistance or cooperation. The first section of this chapter deals in gross terms with some of the events of the past 25 years which appear to be related and insightful preconditions for the IMC.

Preconditions Leading to The IMC at San Carlos

Humanities--In September, 1945, after a long absence, the Facultad of Humanities was reestablished at the University of San Carlos. This renaissance of the Facultad of

Humanities followed the adoption of a new national constitution which granted autonomy to the university. At the same time, San Carlos was charged with the responsibility of the preservation and transmission of the culture through teaching and research, and the supervision of all other institutions of higher education. The responsibility for training secondary school teachers in Guatemala resides with the Facultad of Humanities, and so it was that in 1946, Humanities began offering courses to train such teachers. The Facultad of Humanities also embraces the departments of philosophy, letters, history, literature, pedagogy and psychology, and expresses a concern for the maintenance of a link between the university and the rest of the nation and the world through teaching and research in these disciplines.

Although the training of secondary teachers is one task for which it has sole responsibility, the Facultad has not been successful in attracting, training and placing in schools a high number of secondary teachers. The output has been variously estimated at two to four per year. The result is that most teachers at the secondary level have been trained in the nation's normal schools for teaching at the primary level. The inadequately staffed secondary schools have been long recognized as one of the serious barriers to economic and social development in Guatemala. The World Bank loan and UNDP building program were negotiated in 1968-69 specifically to create a teacher training school

in Guatemala, and to build new secondary education buildings throughout the country.

University City--In 1949, land on the edge of Guatemala City was purchased for the construction of a new centralized campus. Now, 20 years later, this task is approximately half completed. The most recent Facultad to move to the new campus, called University City, is that of Humanities. The Architecture building stands uncompleted at present, but the university administration building, several of the science Facultades, Engineering, a large dome-shaped auditorium called the Igloo, and several service buildings make up the campus. Extensive plans do exist at San Carlos for the final phases of construction and campus development. These plans include the construction on campus of a new building for secondary teacher training and a second building to serve as secondary demonstration school, both to be financed by the World Bank loan.

School of General Studies--The physical and academic isolation of the professional schools, i.e., the Facultades, from each other made coordination and university-wide administration difficult and sometimes led to needless duplication of course offerings and services. It was felt at San Carlos that university students often lacked an integrated view of the arts and sciences and were frequently poorly trained in the academic skills required for university level

work. A student is permitted to take a professional course as many times as necessary to pass it, and although most degree programs are based on eight semesters of academic work, many university students take from seven to fourteen years to graduate, and most do not graduate at all. In a move to correct the conditions which were thought to contribute to this unprofitable situation, a School of General Studies, planning for which began in 1958, was initiated in 1964. Courses were offered in Biology, Chemistry, Culture (including History, Economics and Sociology), Language (but not foreign languages), Mathematics, and Physics. Enrollment was required and initially was 879, but rose to 4236 in 1968 (Oficina de Registro, 1968, p. 9).

IIME--Just as the University of San Carlos undertook in 1945 to revitalize itself, a world-wide concern in the late 1940's and 1950's for the economic and social development of what has since become known as the Third World, resulted in a number of developmental programs in Guatemala and Central America, which were designed to focus coordinated resources on the most critical bottlenecks. One such program, the Instituto de Investigaciones Mejoramiento Educativo (IIME) (Research Institute for the Improvement of Education), was established in 1962 through cooperative efforts of the university of San Carlos and Michigan State University. IIME's international staff was "dedicated to the systematic improvement of education through research and its application in

Central America [IIME, 1962]. IIME's approach to the study, analysis and solution of problems was based on local needs and cultural patterns. Although housed in Guatemala, IIME was formally incorporated in the plan of regional integration then being developed by the Superior Council of the Central American Universities (CSUCA) and was endorsed by the five member national universities. IIME was (and is) a research institute with the central purpose of the development and distribution of "basic research information regarding education and educational need in Central America [IIME, 1962]."

IIME did, in fact, prepare a number of research reports in the early 1960's which provided much information about education in Central America, and made specific proposals for its improvement. It is not within the scope of this paper to discuss those proposals in detail, or their ultimate effect, except to note that the very critical demand for more and better trained secondary teachers was identified, and the strong recommendation for integrated educational planning made (IIME, 1963).

University of Pittsburgh--At more or less the same time, i.e., the late 1950's and early 1960's, the University of Pittsburgh was implementing a "deliberate decision to broaden the international aspect of its teaching, research and service activities [University of Pittsburgh, circa 1966]."

To that end, and among other actions, the University of

Pittsburgh undertook relationships with other institutions in Ecuador, Chile, Nigeria and Guatemala. In addition to contract staff hired from time to time and deployed to live in those countries for varying lengths of time, the development of a supportive infrastructure on the campus in Pittsburgh was required. One function of such an infrastructure is the continuing effort to strengthen the university's international dimension through constant study and new project development. Implementing this function, a Pitt faculty member with a professional background in international education and educational media made numerous consulting trips to Guatemala on behalf of Pitt, the United States Agency for International Development in Guatemala (USAID/G) and educators in Guatemala. His central concerns there were for the training of teachers for secondary education and for the expanded, systematized use of educational media for human resource development (Spaulding, 1964).

It is important to note here that these interests in media and teacher training brought the Pitt consultant into contact both with San Carlos University officials and Ministry of Education representatives. The Facultad of Humanities at San Carlos is charged by law with the training of secondary teachers, but it is the Ministry of Education that employs them. The constitutionally guaranteed autonomy enjoyed by San Carlos frees the Humanities Facultad from effective outside control. These conditions mean that the

Ministry of Education has no legal means of affecting the training program of secondary teachers, and is restrained from starting its own training program. This very serious roadblock to progress was recognized by the Pitt consultant, representatives from the Ministry of Education, and the University of San Carlos, and a liaison committee was established, but without real power; it could do little more than "recommend."

First Pitt, AID/G - San Carlos proposal--The liaison committee was evidently considered an important one, because it reappears in a 1964 proposal for a two-to-three year, \$800,000 AID/G sponsored relationship between the University of Pittsburgh and San Carlos University. This many-faceted proposal grew out of the previous relationships established by AID/G, Pitt and San Carlos, and encompassed the following fields:

1. Institutional planning
 - a. management
 - b. facilities
 - c. computer center
2. Secondary teacher education
 - a. in-service training
 - b. pre-service training
 - c. liaison committee
3. University curriculum
 - a. basic studies
 - b. plan for major fields of study
4. Student personnel service
 - a. testing and counseling
 - b. student records

The proposal included concerns for development of curriculum, instructional media, secondary teacher training, a Materials Production Center and an improvement in the then existing television service (University of Pittsburgh, 1964).

Even though the proposed contract agreement was supported by USAID/G the University of Pittsburgh and many San Carlos university officials, the Superior Council of San Carlos, which has the ultimate authority in such cases, rejected the agreement. The apparent reasons were: (1) continuing difficulty in establishing a viable working relationship between the Ministry of Education and the Humanities Facultad with regard to teacher training, and (2) the feeling on the part of the then Dean of the Facultad of Humanities that he had not been sufficiently consulted in the development of the proposal (Spaulding, 1965). Since much of the proposed contract activity was directly or indirectly aimed at secondary teacher training, the Dean apparently felt that he was within his rights in refusing to agree until he had further studied the implications of the proposal. If, in fact, he did conduct a further study, he evidently did not like what he saw, because the proposal did not finally receive approval by the Superior Council.

Recapitulation--By late 1964 and early 1965, there existed at San Carlos a greatly increased, but somewhat localized, desire to improve the quality of the entering and leaving university student through improved secondary

teacher training and an expanded university curriculum correlated with the development and production of curricular and instructional materials for all levels of education. The 1964 external assistance proposal from Pitt which was designed to help meet this need had failed to receive San Carlos approval. The School of General Studies, though not universally liked, was truly an innovation for San Carlos, and was quickly generating some specific instructional needs of its own, and was, by virtue of numbers of students enrolled, a growing power in university administration. Since the School of General Studies also served as a link between the secondary schools and the traditional Facultades, it was seen by some as the most fruitful location for other new developments--hence its designation, in the 1964, \$800,000 proposal as the proper administrative home for instructional materials development and production.

IMC proposal--When it became evident early in 1966 that the large Pitt proposal was not going to be approved, the Chairman of the Biology Department within General Studies conceived a program of his own for the development and production of the needed materials. His proposal provided for two major programs. The first was for an offset printing facility for the production of the various printed materials required for effective teaching in General Studies and which would be purchased by individual students. The second part of the proposal embodied a center for the production and

3

utilization of instructional materials to be developed and used by San Carlos professors. The printing operation was visualized as a profit-producing venture, and these profits were in turn to be used to support the operation of the production and utilization center, inasmuch as neither professors nor the university administration were assumed to have sufficient funds for instructional equipment and material purchase.

In mid-June of 1966, the University of Pittsburgh responded to this proposal with one of its own in which it agreed to provide advisory and technical services to San Carlos University to assist "in development of an educational media laboratory [University of Pittsburgh, 1966]." This proposal, in dollar terms, amounted to less than a fifth of the earlier 1964-65 proposal, and provided for 18 man-months of specialist assistance in educational media and higher education and eight man-months of short-term advisory service to assist in the effective development and use of the media laboratory. It was also understood at that time that some assistance could be offered to the San Carlos computer center.

IMC contract--These two proposals in 1966, the one from San Carlos and the response to it from Pitt, resulted in a contract between the University of Pittsburgh, San Carlos University and USAID/G. The proposals were in basic agreement on the following objectives:

- 1) To assist San Carlos in the development of an educational media laboratory with local production facilities, equipment service, film library and in-service training program;
- 2) To advise on collaborative relationships between educational media laboratory, the University Library, the University Press for the regional distribution of materials produced;
- 3) Advise San Carlos on possible uses of the computer;
- 4) Advise San Carlos and AID/G on scholarships and training programs to provide skills for the developing media program.

In addition to the above proposed objectives, this 1966 contract contained a long-range objective which apparently derived from the earlier, larger Pitt proposal but which did not appear in any of the working papers developed prior to this contract. This objective was: to establish relationships between the educational media laboratory and the Ministry of Education in Guatemala so as to extend the concerns of the center into the secondary schools through the development of secondary school teaching materials which would then provide greater continuity between the secondary schools and the university.

IMC implementation--In order to implement this contract, it was necessary for the University of Pittsburgh to recruit a person who was qualified to undertake the 18-month residency in Guatemala to serve as media advisor in educational media and higher education (in effect, to be Chief-of-Party). Since the project contract was not signed until October, 1966, well after the date originally expected by the University of

Pittsburgh, difficulties were experienced in locating a qualified person who was not already under contract for that academic year to a North American university. It was not until February, 1967, that a media advisor was able to establish residency in Guatemala and to begin activities related to the IMC project.

Educational planning in Guatemala--Another area of educational development activity which increased in the early 1960's was that of planning. IIME at San Carlos supported the growth of the Office of Planning there, and the Ministry of Education expanded the scope of its planning activities. The University of Pittsburgh indirectly contributed to this development by training one person who later worked in both of these planning offices. One activity of these offices was to assist in the development of proposals to major international lending and granting institutions for multimillion dollar assistance programs specifically designed to correct some of the basic weaknesses of the Guatemalan education system. These proposals went to: (1) USAID for assistance in primary education, (2) the World Bank for secondary school construction, (3) United Nations Development Program (UNDP) for help in augmenting the small number of trained secondary teachers, and, (4) to the Inter-American Development Bank (IDB) for aid to higher education. Each of these proposals contained recognition of the need to develop appropriate instructional materials and the media for their dissemination,

although specific implementing programs were not always included. These massive loans and grants, because of the debt service and program maintenance responsibilities which would result, were not universally approved of in Guatemala, but negotiation for them was begun about the same time the IMC project was initiated. They were a response to pressures at all levels of education for greater educational opportunities for Guatemalan citizens.

New universities--Another measure of this increased pressure on educational institutions in general and the university of San Carlos in particular, is the emergence, since 1960, of three other universities in Guatemala. The Jesuit university, Landivar, the Protestant university, Mariano Gálvez, and the private Universidad del Valle now offer higher educational alternatives to secondary school graduates. San Carlos is charged by law (Constitucion de la Republica de Guatemala, Article 99) with the supervision of all higher education in Guatemala, but apparently has been unable to establish the required mechanisms and consequently the other universities function with little real control by San Carlos.

These, then, are some of the important events and decisions occurring from 1945 to 1966, which were preconditions for the creation of an instructional materials center of the San Carlos campus, and which further conditioned the impact the IMC was able to make.

IMC Contract Period

Equipment purchase--Prior to the February, 1967, arrival of the resident media advisor in Guatemala, one short-term advisor, an instructor in Educational Communications at the University of Pittsburgh, had already spent two weeks on the campus of San Carlos in Guatemala, compiling a list of equipment which, in his judgment, would be useful in the projected activities. At this time, there had been no systems analysis of the task to be undertaken by the project. The list compiled replicated rather faithfully the media production laboratory for teacher training already in existence at the University of Pittsburgh. The equipment purchased for the Guatemala project reflected a fairly traditional response to the problems and opportunities associated with the use of new instructional materials and with training teachers in their use. The equipment was received in Guatemala in July, 1966, some five months after the resident advisor arrived. It consisted primarily of a range of projection equipment, tape recorders and photographic equipment, including the basic equipment required for darkroom work. Additional production equipment supplied was primarily for the creation of art work and overhead transparencies.

Certain deficiencies in equipment and materials purchase and/or delivery and space allocation were evident to IMC personnel at this time and were never corrected. Specifically: (1) a 35 mm. camera was never purchased, making

systematic production of 2 x 2 slides impossible; (2) even though San Carlos University provided space in the new Engineering building at the new campus for the Instructional Materials Center, no provision was ever made for a darkroom, rendering useless all the photographic equipment and reducing considerably the varieties of visual materials that could be produced; (3) three 16mm. movie projectors were purchased, but no great number of films were made available, and no professional 16 mm. cinema equipment was ever purchased. The net effect of these and other more minor deficiencies was that the major production effort of the IMC was restricted to the development of overhead transparencies and various kinds of graphics, such as posters.

RTAC--In Mexico City, the Regional Technical Aids Center (RTAC), functioning as an arm of the United States Agency for International Development (USAID) provides an instructional materials production and training service in Latin America. It was hoped that RTAC could provide instructional materials specifically designed for Spanish speakers, but a preliminary visit to RTAC by the IMC resident advisor early in the project term, revealed that RTAC had sustained a serious budget cut and could do little more than maintain its present programs. A number of copies of an audio-visual textbook which had been translated from English to Spanish were purchased from RTAC, but inadequate funds in the budgets of RTAC and the IMC precluded any other kind of materials acquisition for the IMC at San Carlos.

The center for the production of materials--Although the original San Carlos proposal suggested a combined center for printing and production of instructional materials, San Carlos administrators had already established the offset printing center before the IMC contract was signed. This printing facility was called The Materials Production Center, and was kept administratively separate from the IMC when it was established later. The two main effects of this move were that profits from the printing were never available for IMC support, and the very important function of printing instructional materials was not readily available to the IMC, either as a service it could offer, or use itself.

Plan of action--Early in the life of the IMC contract, a plan of action was evolved. Not all of its 18 points were fully implemented, but they are listed here to suggest the scope of proposed IMC involvement in the university learning process. All of these activities are "open-ended" in the sense that each suggest on-going developmental effort rather than point-in-time decisions or accomplishments. Moreover, one instance of performance for each of the 18 points is sufficient to indicate its initiation, but says nothing about the ultimate value and impact of that single action. With the possible exception of numbers 6 and 14, effort was made by the resident advisor to implement the plan of action, but most activities initiated had a life span limited to the IMC contract period.

- (1) Appoint media coordinators in various Facultades and schools--An attempt was made to do this, but there is no evidence that effective linkages between them and the IMC were established.
- (2) Study other media programs--In addition to the familiarity each consultant had with various media programs in North America, the resident advisor and his Guatemalan counterpart traveled early in the contract period to several countries in the northern part of South America. A report on that trip was developed by the resident advisor's counterpart.
- (3) Establish equipment and materials service--The intent was to determine availability of equipment owned by San Carlos and the IMC and to place in each Facultad, school and major department a motion picture projector, a film-strip and slide projector, an opaque projector, an overhead projector and a tape recorder. These were to be in the charge of the media coordinator in the various Facultades. The materials service was to include film rental services and a film library at San Carlos. Neither of these functions was ever implemented. The cause of this inaction is not entirely clear although lack of money was a contributing factor. An equipment pool was maintained at the IMC for loan to individual faculty members.
- (4) Conduct of media demonstrations--An in-service training function, this was carried out by the short-term consultants, working with groups of faculty members as well as individuals. Biology professors comprised the only group to participate in this activity in depth. An important and unexpected side effect of the audio-visual course offered Biology professors should be recorded here. A number of the Biology Professors were also teaching on a part-time basis in the School of Nursing, located at Roosevelt Hospital in Guatemala City. The School of Nursing, while attached to San Carlos University administratively, was not controlled or supported by it. The Biology professors spoke enthusiastically about the use of media, and used some of the materials they had constructed in class in the IMC. Their enthusiasm resulted in a decision by the Nursing School staff to construct their own instructional materials center. The new training programs being developed in the School of Nursing were being supported by foundations, and the future of the instructional materials center there now appears to be independent of the future of the San Carlos IMC.

- (5) Use of consultants--The areas of consultant expertise requested were: (a) computer services, (b) printed material services, (c) curriculum integration of media, (d) materials preparation and demonstration. In fact, except for the computer consultant, each consultant brought to Guatemala under the IMC contract was not so strictly categorized and performed in all three of the last three functions named above.
- (6) Establish film library--Never undertaken.
- (7) Establish instructional materials production laboratory--Equipment ordered at the beginning of the contract included items to establish a modest laboratory for the production of inexpensive instructional materials. Biology professors were taught how to use the equipment and the associated materials. When all IMC project materials were consumed, it was frequently impossible for San Carlos faculty or administrators to purchase more, either because of non-availability of materials in Guatemala or for lack of money.
- (8) Conduct pilot projects in radio and television--Planning activity only was undertaken here.
- (9) Work in depth with one Facultad--The Biology faculty was chosen for a six-week course which met daily, and as needed thereafter.
- (10) Work with one classroom facility--With the help of a number of Guatemalan educators, the resident advisor recommended some design changes in the Igloo interior which would make it possible to increase the use of media. Among other things, the chalkboard was to be reduced in size to make room for a permanent projection screen. Ensuing discussion among Guatemalans resulted in an interim decision to remove the chalkboard altogether, but there were those professors who wanted to retain the chalkboard because they felt they could not teach without it, and they were equally certain that overhead transparencies were no substitute. The important point here is that a relatively small physical change did elicit considerable discussion about teaching techniques among faculty members. Ultimately, a compromise was struck, providing both the screen and the chalkboard. A projection booth was also added to the Igloo's facilities.
- (11) Cooperate with teacher education groups--The plan of action lacks specificity on this point. It is not clear what was intended nor that any action was taken.

- (12) Cooperate with text materials preparation committee--
A committee appointed by the Ministry of Education and the University of San Carlos was preparing text materials in physics and mathematics. By participating in this activity, it was hoped that the IMC could promote more cooperation between the Ministry and San Carlos. One planned method of participation was to have the offset printing center produce the textbooks. That center did, in fact, print the texts, but it was never an administrative part of the IMC, so the IMC was unable to participate to any great degree in the text book program.
- (13) Train center staff--The objective was to train university staff to take over the work of the IMC when the contract expired. An artist and a secretary were so trained, but were forced to find other work at the contract's end since San Carlos elected not to continue to pay for their services.
- (14) Publish media newsletter--This was deemed especially useful because of the wide geographical distribution of the Facultades and schools over Guatemala City and the country. Again, offset printing facilities were to have been used, but the media newsletter did not become a continuing operation, if in fact it was ever undertaken.
- (15) Establish operational procedures--This was an activity with no particular focus except to establish procedures which would insure IMC life and continuity after the contract expired. Little success was experienced in this regard. A Guatemalan counterpart for the resident advisor had been appointed by San Carlos University. He had, however, a number of other important and demanding responsibilities and his main function was to serve as a link between the IMC and San Carlos administration. The resident advisor did not speak Spanish, and although he had a bilingual secretary, he was unable to communicate directly with non-English-speaking Guatemalans. There is no record to indicate the specific nature of his communication channels with university personnel, but in general it was necessary to rely on interpretation of the written and spoken word, carried out by his secretary, his counterpart, and selected faculty members, all of whom were bilingual in Spanish and English.
- (16) Change "language lab" to "learning lab"--The idea here was to secure approval to add other kinds of learning resources to those already in use in a twenty-four booth language laboratory already in existence at the new San Carlos campus. Again, there is no evidence of success on this point.

- (17) Design housing for media facilities--This was seen primarily as assistance to architects designing a University Library which was also to permanently house the media facilities. There is no evidence of fruitful activity here.
- (18) Coordinate other University of Pittsburgh projects in Guatemala, where needed--The possibilities envisioned here were new or enhanced program activities in (a) urban and regional planning, (b) the School of Social work, (c) Chemistry, (d) Biology, and (e) Doctoral Research studies. In fact, the University of Pittsburgh was able to offer consultation and/or assistance in all these areas using consultants, full-time advisors and trips to Pittsburgh for certain San Carlos personnel. Midway through the IMC contract period, the contract was amended to provide additional assistance to San Carlos in the areas of Chemistry, and Urban and Regional Planning. Most of this assistance came in the form of short-term consulting, but one chemistry professor from Pitt spent approximately 18 months at San Carlos. His arrival made possible a shift of chief-of-party responsibilities to him from the resident media advisor.

The timing of the IMC contract was such that it spanned most of two academic years at San Carlos, missing the first part of 1967 and latter part of 1968. No records of the IMC equipment loan function are available for most of 1967, but for the 1968 academic year, there were 80 instances of equipment loan to faculty members. Some of these were for periods of several months and give no real indication of the number of times the equipment was used. Over sixty percent of the requests for audio-visual equipment came from the Engineering Facultad, the Facultad in whose building the IMC was lodged. The Biology faculty in the School of General Studies borrowed equipment less frequently, but often kept what they borrowed for several months.

Mentioned earlier were the loan and grants to the three levels of education in Guatemala. The Inter-American Development Bank (IDB) proposal was composed of ten programs, one of which was the development of a closed circuit television facility for higher education. This interest in television was also reflected prior to the IMC contract in two reports and recommendations prepared by the Pitt media consultant. The IMC resident advisor was also asked to contribute to the design of television facilities to implement the learning resources section of the IDB loan, but neither that design nor the other reports were implemented during the life of the IMC contract.

The author of this research study served as a short-term advisor in the IMC for six weeks in July and August, 1967, his term overlapping somewhat with the second advisor's. Major activities of the IMC were undertaken during this period of time in Guatemala, and it appears useful to describe in some detail other events of that period of time.

In the early stages of the project, some hope was still entertained that the printing operation and the IMC could be brought together under one administrator, or at least that a cooperative atmosphere could be established that would result in easy access to the printing process when so desired by the IMC. To that end, considerable time was spent in the printing workrooms which were housed in a building adjacent to the Engineering building, the home of the IMC. It

was possible to put back in operation certain equipment that was malfunctioning, and in turn the IMC received considerable assistance in the photographic reduction of artwork prepared for overhead transparencies.

Coincident with the above activities, a major part of the equipment was released from Customs, and a first task was to unpack, take inventory, and put in operation as much of this equipment as possible. Photographic equipment remained, for the most part, in the original containers for the life of the contract. As soon as the other equipment was operational, it was used to prepare overhead transparencies for a number of people associated with the IMC.

In addition to the activities already named, the resident advisor and available short-term advisors consulted with some Facultades, particularly Dentistry, with regard to the utilization of IMC resources within a radically restructured curriculum proposed in that Facultad. Since additional money would have been required, no real progress was made beyond these preliminary discussions, but they were sufficient to reveal the scope of opportunities open to innovative use of educational media in Guatemala. The Facultad of Dentistry had already embarked upon a reevaluation of its own curriculum and had plans for changing it in such a way as to place fourth-year students in the field, working on practical dental problems. The Dentistry Facultad was concerned that the physical distance between these individual students in the

field and the central Facultad in the city would create added instructional problems. Members of that Facultad were asking for help in developing communications channels and instructional materials which could be used for each student but which would provide opportunity for communication on general problems as well as problems specific to each student's experience. A list of equipment was eventually drawn up which would have made such communication possible but money for the implementation of this program never became available.

Phase-out activities of the IMC--As the IMC contract drew near the end of its first eighteen months, and termination, the University of Pittsburgh entertained hope that AID/G and San Carlos would support a contract extension. This support was not forthcoming and the contract ended in the fall of 1968. An extension would have required both an expression of willingness to continue the relationship from San Carlos, and additional funds from AID/G. In this case, AID/G decided against a continuation, apparently in line with its policy of reducing support of higher education in Guatemala.

The life and character of a project such as the IMC derive from the personal and professional activities and relationships associated with it. These, in turn, are influenced by decisions and policies of the participating institutions. There were a number of such factors present in Guatemala and at the University of Pittsburgh as well which probably contributed to circumstances leading to the decision

by AID/G not to further support the IMC. A description of some of them is offered here for the sake of example and because the examples chosen appeared to have been crucial to IMC's future.

External aid policies--Prior to and during the IMC contract, the University of Pittsburgh had subscribed to an institutional approach to external assistance. This approach relies on the extension of advice and assistance specified by contract, but assumes the desirability of continuing exploration of other areas where assistance might be possible and useful. "A project is conceived of as an on-going relationship between the two institutions, with emphasis and effort changing smoothly and reasonably quickly in response to changes in the personnel or climate of the various areas [Dunkleberger, 1969]." This approach can provide continuity, coordination, flexibility and mutual benefits for the institutions involved. It is, also, somewhat like basic research in that reliable cost/benefit ratios are hard to determine, and for that reason often appears to be, and in short run, may be, excessively expensive. It was the opinion of the author of the IMC project final report that this long-range institutional approach to external aid was in basic conflict with the prevailing AID/G policy which reflected an interest in supporting individual projects characterized by more finite parameters of time and activity. The IMC represented, for AID/G, a small, finite project with precise beginning and

ending dates. For Pitt, the IMC was probably seen as the first of more and varied arrangements which would spring from that university's long-range interest in educational development in Guatemala.

Personal and professional relationships--The IMC contract grew out of a set of professional and personal relationships established between representatives of the University of Pittsburgh, the University of San Carlos and the United States Agency for International Development in Guatemala. The contract was negotiated by men approved by their separate institutions to commit that institution to the terms of the contract. The authority to commit each institution to the contract devolved on these men by virtue of the position held by them within their own institution. All the occupants of those positions had moved on to other responsibilities within a year after the IMC contract was signed, and were replaced by others. The replacements apparently experienced little difficulty in assuming the professional role of institutional representative, but the personal relationships which had produced the IMC contract were no longer present. Each of these representatives responded to the requirements of his new role in terms of personal and professional interpretations of his institution's policies and priorities.

Perhaps the most important change was the election and installation at San Carlos of a new Rector. This election was a regular event and constituted no surprise, but as

values. One of the basic purposes of the proposal for integration of some Facultad activity, combined with the creation of new supportive services for teaching and administration, is the creation of an organization which can facilitate continuous change and self-renewal. This proposal for a social invention is characteristic of the requirements for social change and the accommodation of a variety of fundamental technology and knowledge structures.

CHAPTER IV

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The problem for this research project is to determine the perceptions of San Carlos faculty and administrative personnel of the value of the IMC to their role performance, to state the implications of those perceptions, and to describe the changes in those perceptions that occurred. The value of a response to this problem lies primarily in generalizations about human organizational behavior which can be derived from the specific instances of that behavior, and the application of those generalizations to other bilateral technical assistance programs in higher education.

The perception, implication and change aspects of the problem represent three levels of response which can be discussed in terms of considerations of organizational as well as individual change. A discussion of those three levels has its prime meaning when considered against the background of the major educational problems in Guatemala. The one problem which appears to have conditioned the value and impact of the IMC project was not so much university education in general as it was the training of secondary teachers in the Facultad of Humanities at San Carlos.

Broad fronts of educational development--The secondary teacher training problem in Guatemala is acute, and a number of programs and projects have been conceived by educational planners there to remedy that condition. The IMC was only one such project, and in fact, its planned effect on teacher training was probably seen only as an indirect result of other instructional services it offered the university faculty. There were, certainly, other, more frontal attacks by San Carlos on the teacher training problem. Three broad fronts may be identified on which were moving major efforts to correct the problems created by years of insufficient numbers of secondary teachers. They were:

1. Changes in instructional patterns at the university--One example of these changing patterns was the School of General Studies, which had as one objective the remedial instruction necessary to provide newly enrolled university students with the skills required for university-level work. Although not an administrative part of the School of General Studies, the IMC was seen as having particularly valuable application in the School of General Studies.

2. Major, internationally funded education development programs--These include the United Nations Development Project (UNDP) for a teacher training school in the Facultad of Humanities, the Inter-American Development Bank (BID) loan proposal for improvement of higher education and a World Bank loan for new secondary education buildings, two of which will be on the San Carlos campus.

3. Planning, research and development activities both at San Carlos University and in the Ministry of Education--These include the Office of Planning in the Ministry of Education, the Office of Planning at San Carlos, IIME at San Carlos, and loan and grant negotiations in the Ministry as well as at San Carlos. All these activities were related and often dependent on each other. The improvement of secondary teacher training and second level education was not the only purpose of these three broad fronts, however, and not all the activities characteristic of those fronts were equally visible. Of the three, the most visible during the period of this research was the one involving major funding proposals and activities. Changes in the instructional patterns, and planning activities were, for the most part, either at the level of discussion or production, but in either case, demanded less long-range commitment and fewer decisions on the part of the Superior Council at San Carlos. The proposed BID loan, the World Bank loan and the UNDP grant, combined with matching funds, amounted to a sum of over \$14 million with chances for even more at a later date. Not all this money benefited San Carlos, but the financial and jurisdictional stakes deriving from those proposals were too high to be ignored by San Carlos faculty, administrators and students.

Program plans for the activities characteristic of each of the three fronts included an awareness of a need to

develop the then available instructional materials and media resources. The dimensions of this need were uncertainly perceived since there was required an almost simultaneous consideration of all aspects of educational technology at all three levels of education. The number and kinds of people, the selection and combination of new and old curriculum ideas and practices, the development of distribution systems, and the development of new roles are all examples of those aspects of educational technology that require simultaneous articulation with each other and with other subsystems of the educational program. The teacher training school proposal recognized a place for media in teacher training, but implicit in its effective use in training is the assumption that the newly graduated teacher would have available increased materials and resources when he begins to teach. Provision for new aspects of educational technology in a teacher training situation is a more or less finite matter, but the creation of the system which could also provide those same aspects for all schools and all teachers is a matter of considerably more complexity. Likewise, the BID proposal originally contained a major program, later revised and scaled down, for a closed circuit television system for higher education in Guatemala. As a logistical problem, such a system is susceptible to rational planning and implementation, but the administrative and individual changes required for its integration with teacher training and other instructional activities at the universities is

another matter altogether. It is at the ideological level that such changes are required and often find resistance.

"An ideology may be defined as that part of his image of the world which a person defines as essential to his identity or his image of himself [Boulding, 1964, p. 159]." A teacher who is ideologically aligned with propositions basic to the conservative functions of education will probably experience difficulty in altering his behavior and attitudes concerning his teaching functions. His self-image as a conservator of his society's value system rests partly on his belief that his contribution to the curriculum, i.e., the totality of experiences provided by the school, is in the best interest of the society. A methodological change in that contribution, which is the very least that increased use of instructional media requires, probably also requires changes in the self-image and the value system on which it rests. An additional change in a teacher contribution may be required as the school assumes new and disruptive functions and will probably have an even greater wrenching effect as the conservative functions are called into question. To the extent that educational technology requires a change in teaching method, it poses training problems that are primarily logistical in character, but when the educational technology is recognized as having potential for a rapid spread effect in the transmission of disruptive, tension-producing ideas, administrative decisions and change are then probably required regarding control of

the media and its informational functions. This is reflected in the following discussion of the perception, implication and change levels of the problem.

Level I of problem response--This level of response to the problem deals with faculty and administration perceptions of the value of the IMC for their role performance. In the case of both faculty and administrators, it appears that the perceptions were functions of needs to maintain their professional role performance at the least cost in energy, time, and loss of jurisdiction. Faculty members with easy access to and familiarity with the IMC were the ones who continued to use its service even after the AID contract had expired. Those Facultades not yet moved to the central campus where the IMC was located began to develop their own instructional materials. San Carlos administrators were willing to give the IMC space, but without great pressure from faculty or students, saw no reason to place a high priority on financial support for the IMC. They were not unaware of the impending possibilities for the integration of instructional materials/media development in the secondary teacher training school and the closed circuit television project, and it is likely that administrators and teachers alike saw in those projects the opportunity for more certain control and financial support for that task. For administrators, the IMC had value as a service which could be listed in proposals to demonstrate the steps already taken to support teacher

activities, and for teachers it had value as a model, a reference, for discussions about future instructional materials and media development on the campus.

Level II of problem response--The implications of these perceptions are at once quite mundane and profound: viewed in a time perspective, the 18-month IMC contract was for a relatively short-term project at a university nearly three hundred years old. The IMC was not crucial to the stability of San Carlos as an institution nor to job retention by any San Carlos teacher or administrator. On the other hand, the IMC represented an idea which focused attention on the need for improved communication and educational technology at the university and in the country as a whole.

Historically, it is possible to relate the IMC idea to campus development activities as far back as 1945, and the idea appears to have life for the future at San Carlos. The trend from the days when San Carlos decided to centralize the Facultades, to the present, and into the future, appears to be away from greater involvement with and assistance from single nations, through international funding directed at Guatemala, and very likely, toward single nation as well as international assistance to the Central American region. The trend is away from individual projects and to greater degrees of multi-faceted institutional involvement within, and across, national borders, supported by regional planning and project funding.

Level III of problem response--It does not appear that individual faculty or administrators radically changed their perceptions of the IMC's value to them during the period of this research. Whatever decision they had made relative to its value, apparently had been made earlier, during the IMC contract. If there was a change, it was in the direction of attributing less value to the IMC than before. Faculty interest apparently declined, although this may have been a result of the IMC's inability to provide a service. Some administrators tried and failed to integrate the IMC into the San Carlos structure, but that integration probably did not have high priority with anyone.

The IMC was one of several innovative programs and projects at San Carlos which have failed to flourish, but which have served to focus attention on the critical needs of the educational system of Guatemala. The identification and specification of those needs have served to bring pressure on the university for organizational change, some of which lies in the future. The organizational changes at San Carlos most clearly associated with the IMC and the idea it represented are those required to (1) implement a secondary teacher training school, (2) revise the curricular offerings, (3) restructure the Facultad responsibilities, and (4) devise ways for integrating the needs and the products of the first two levels of education with higher education.

Recommendations

International funding--Frankel (1968) makes a theoretical case for the wisdom of supporting the autonomy and freedom of institutions of higher education involved in bilateral technical assistance programs. This case rests on assumptions favorable to the position that academic freedom is the only base from which mutual development can begin. Educational interventions in higher education which are directly supported and controlled by external institutions with a fundamentally political orientation will eventually be confronted by a resistance which springs from the need to maintain host institutional autonomy. The findings of this research project tend to support Frankel's view that there is less threat involved, and more potential value in agreements between universities which are not circumscribed by national political considerations. It seems probable that the need to protect institutional autonomy against all threats to it overrides almost all other considerations, even that of money. This research tends to support international funding of education projects or the general subsidization by the U.S. government of a North American university for technical assistance alliances with a foreign university. This policy involves considerably less threat to institutional autonomy, and makes more possible the implementation of the following recommendations.

Long term projects--The cumulative and conservative functions of education serve to create a host system environment which makes almost mandatory, long-term, five to ten year, technical assistance program commitments. The development of viable and influential new institutions, the establishment of linkages with existing ones and the facilitation of the human and organizational changes take at least that long to accomplish.

Instruction, which implies methods and techniques, is, as suggested earlier, a task with logistical overtones. Training for instruction is a relatively simple matter, given proper amounts of money, space and personnel. On the other hand, changes in a society's value system, whatever their origin, require time to be articulated and accepted as worthy of transmission through the education process. It is this dependence on the value system changes that makes education a more complicated process than instruction, and that requires a long-term, five to ten year, mutual assistance commitment by higher education institutions.

Urquidi recommendation--Assuming the willingness of two or more universities to embark on a long term assistance arrangement, and assuming funding free of first-order nationalistic political constraints, a third recommendation arising from the research is for project implementation operations which permit the maintenance of the integrity of all institutions involved, and which provide for mutual benefits. The

findings of this research project support the recommendations of the Urquidi (1969) report to Education and World Affairs regarding principles underlying external aid to Latin American institutions. The Urquidi recommendations suggest potentially profitable ways to initiate and implement technical assistance operations and are presented below as specific first considerations and steps to be taken.

1. Meet local needs as locally defined. Make the project responsive to the specific situation; involve a larger variety of individual Latin American participants; put fewer restrictions on fellowships and visiting professor support; keep permanent representatives of funding agencies in Latin American countries.
2. Be selective: Aim at modernization. Support the good and promising institution only, since external aid is a relatively small portion of local education investments; work toward the day when regional centers can serve several countries; fund programs for five to ten years; informally coordinate funding agency activities; let programs reflect the national education plan; maintain continuous evaluation.
3. Concentrate on the development of human resources. Place greater emphasis on human resources than on provision of buildings and equipment; plan and coordinate fellowship programs, and concentrate on

postgraduate students; provide funds for greater and continuing communication among scholars.

4. Aid should be non-political. "All external assistance in the development of Latin American higher education must be considered non-political and must be based upon full respect for university autonomy and local administration [Urquidí, 1969]."

Summary

The value of programs of technical assistance between institutions of higher education in North America and Latin America probably is greater when it is undertaken free of political constraints, when it respects the autonomy of all institutions, when sufficient time is available to firmly establish goals and implement realistic programs, when more people are permitted to participate in planning and policy decisions, and when due and mutual respect is accorded the value systems of the participating societies.

REFERENCE

- Adams, R. N. Social change in Guatemala and U. S. policy. In Lyman Bryson (Ed.) Social change in Latin America today. New York: Vintage Books, 1960. Pp. 231-284.
- Adams, R. N. The second sowing: Power and secondary development in Latin America. San Francisco: Chandler, 1967.
- Baldwin, I. L. Building institutions to serve agriculture. International Development Review, December, 1968, X(4), 7-11.
- Barrientos, R. Bolivia. Time Magazine, May 9, 1969, 47.
- Beeby, C. E. The quality of education in developing countries. Cambridge: Harvard University Press, 1966.
- Biddle, B. J., & Rossi, R. H. Educational media, education, and society. In P. H. Rossi, & B. J. Biddle (Eds.) The new media and education. Chicago: Aldine, 1966. Pp. 2-45.
- Boletin estadistico universitario. Guatemala: Oficina de Registro, Universidad de San Carlos de Guatemala, 1968.
- Boulding, K. E. The image: Knowledge in life and society. Ann Arbor: University of Michigan Press, 1956.
- Brickell, H. M. State organization for educational change: A case study and a proposal. In M. B. Miles (Ed.) Innovation in education. New York: Teachers College Press, Columbia University, 1964. Pp. 493-532.
- Bruner, J. S. The process of education. New York: Random House, 1960.
- Butts, R. F. Civilization as historical process: Meeting ground for comparative and international education. Paper presented at the annual meeting of the Comparative Education Society, Chicago, February 16, 1966.
- Caro, F. G. Approaches to evaluative research: A review. Human Organization, Summer, 1969, 28(2), 87-99.
- Cerych, L. Problems of aid to education in developing countries. New York: Frederick A. Praeger, 1965.

- Cerych, L. Accelerating the innovation process in education. In G. Z. F. Bereday (Ed.) Essays on world education. New York: Oxford University Press, 1969. Pp. 34-50.
- Coleman, J. S. (Ed.) Education and political development. Princeton: Princeton University Press, 1965.
- Comisión de Planeamiento, Universidad de San Carlos de Guatemala. La realidad nacional y la Universidad de San Carlos de Guatemala. Plan de desarrollo de la Universidad, 1967-1974. Capitulo I. No date. Guatemala: Universidad de San Carlos.
- Constitución de la República de Guatemala. Guatemala: Publicaciones de Ministerio de Gobernación, 1968.
- DeVries, E. A review of literature on development theory 1957-1967. International Development Review, 1968, X(1), 43-51.
- Droubay, M. S. Summary of the plan for integrated development of higher education in Guatemala. A report to USAID/G Chief-of-mission, January, 1969, United States Agency for International Development.
- Dunkelberger, T. H. The terminal report. University of Pittsburgh Contract AID 520-185-T and its several amendments, February, 1969, United States Agency for International Development.
- Edling, J. B. Educational objectives and educational media. Review of Educational Research, 1968, XXXVIII(2), 177-194.
- Franck, P. G. Technical assistance to the U. N.: The U. N. mission in Afghanistan, 1950-53. In P. G. Franck & H. M. Teaf (Eds.) Hands across frontiers. Ithaca: Cornell University Press, 1955. Pp. 13-61.
- Frankel, C. Educating for the twenty-first century. Paper presented at the final week celebration of the University of Illinois Centennial Year, Urbana, Ill., March, 1968.
- Frei Montalva, E. La universidad, conciencia social de la nación. Prólogo, October-November, 1962. Cited by K. H. Silvert, The university student. In J. J. Johnson (Ed.) Continuity and change in Latin America. Stanford: Stanford University Press, 1964. Pp. 206-226.
- Friedman, B. D. The public administration of education in Central America. Paper presented at the meeting of the First Central American Conference on the Training of Secondary School Teachers, Guatemala, July, 1964.

- Gallaher, A., Jr. Directed change in formal organizations: The school system. In R. O. Carlson, A. Gallaher, Jr., M. B. Miles, R. J. Pellegrin, & E. M. Rogers, Change processes in the public schools. Eugene: University of Oregon, 1965. Pp. 37-51.
- Gardner, J. W. Toward a Self-Renewing Society. Time Magazine, April 11, 1969.
- Goodenough, W. H. Cooperation in change. New York: John Wiley & Sons, 1966.
- Harrison, J. P. Learning and politics in Latin American universities. An address before the Academy of Political Science at the Spring meeting on 'Economics and Political Trends in Latin America, May 5, 1964. Reprinted in Latin American Trends, 1964, XXVII(4), 23-34.
- Instituto de Investigaciones y Mejoramiento Educativo. Instituto de investigaciones y mejoramiento educativo. Guatemala: IIME, 1962.
- Instituto de Investigaciones y Mejoramiento Educativo. Formacion de profesores de educacion media. Guatemala: IIME, 1963.
- Janowitz, M., & Street, D. The social organization of education. In P. H. Rossi, & B. J. Biddle (Eds.) The new media and education. Chicago: Aldine, 1966. Pp. 207-242.
- Kerlinger, F. N. Foundations of behavioral research. New York: Holt, Rinehart & Winston, 1967.
- Laswell, H. D. The climate of international action. In H. C. Kelman (Ed.) International behavior. New York: Holt, Rinehart & Winston, 1965. Pp. 337-353.
- Meierhenry, W. C. Programs for the preparation of media specialists. In C. W. Stone (Ed.) The professional education of media service personnel. Pittsburgh: Graduate School of Library and Information Sciences, University of Pittsburgh, 1964. Pp. 1-34.
- Miles, M. B. Educational innovation: The nature of the problem. In M. B. Miles (Ed.) Innovation in education. New York: Teachers College Press, Columbia University, 1964. Pp. 1-48.
- Organization of American States. Development of education in Latin America--prospects for the future. Final report of the Special Commission for the Programming and Development of Education, Science and Culture in Latin America,

1963. Organization of American States and Alliance for Progress.
- Schramm, W., Coombs, R. H., Kahnert, F., & Lyle, J. The new media: Memo to educational planners. Paris: Unesco, 1967.
- Schramm, W., & Winfield, G. F. New uses of mass communication for the promotion of economic and social development. Communications, GPO, no date, XII, 1-20.
- Silvert, K. H. The university student. In J. J. Johnson (Ed.) Continuity and change in Latin America. Stanford: Stanford University Press, 1964. Pp. 206-226.
- Spaulding, S. The potential role of educational television in developing human resources in Guatemala. Unpublished internal report, one of a series of three following a two-week tour, Guatemala, 1964, University of Pittsburgh.
- Spaulding, S. Progress report on secondary teacher education in Guatemala. Unpublished internal report, one of a series of internal reports, March 31, 1965, University of Pittsburgh.
- Summarization of international activities at the University of Pittsburgh. Unpublished internal report, no date, about 1966, University of Pittsburgh.
- Teaf, J. M., Jr. Origins of a private village improvement project, American Friends Service Committee in India. In H. M. Teaf, & P. G. Franck (Eds.) Hands across frontiers. Ithaca: Cornell University Press, 1955. Pp. 63-125.
- University of Pittsburgh. Unpublished memorandum for the record on proposed relationship with AID (San Carlos University), December, 1964.
- University of Pittsburgh. Current proposals and programs between the University of San Carlos in Guatemala and the University of Pittsburgh. Unpublished internal memorandum, March, 1968.
- Urquidi, V. L. Attitudes in Latin America to the policies of the funding agencies. A report to Education and World Affairs, Council on Educational Cooperation with Latin America, February 1, 1969.
- Wood, R. H. U. S. universities: Their role in AID-financed technical-assistance overseas. New York: Education and World Affairs, 1968.